Amendments to the Claims

This listing of claims supersedes all listing of claims.

1. (Currently amended) A method ~~for characterizing the probability of a finger print~~ ~~match for at least one finger, said method~~ comprising ~~the steps of~~:

receiving a search record and a plurality of file records from a database with each file record being identified by a different file record identification (ID), wherein the search and file records each comprise a plurality of prints corresponding to fingers on a hand, and each print is identified by a finger number that indicates a position of the corresponding finger on the hand;

for each of at least some of the plurality prints in the search record, performing a search by comparing the print to the print in the file records having the same finger number and generating a corresponding sorted respondent list for the finger number comprising a portion of the plurality of file records, with each file record on the list being associated with a match score;

determining a set of parameters comprising: the number of prints from the search record for which a search was performed and the corresponding finger numbers for those prints for which the search was performed, a size of the database, an average match score for each file record ID in the respondent lists, any file record IDs that appear on multiple respondent lists, any match scores on the respondent lists determined to be a non-matching score that is less than a match score threshold;

determining a set of features based on the set of parameters;

~~providing at least a plurality of match scores for at least one finger;~~

~~providing a finger index;~~

~~providing a number of fingers used in the search;~~

~~providing a number of times a finger index appears in a subset matches;~~

~~providing a number of records in the database;~~

for the file records in the respondent lists, calculating at least one record identification metric based on the set of features and the set of parameters, wherein the record identification metric indicates whether there is a match between the search record and the corresponding file record ~~at least one of: said plurality of match scores for at least one finger; a difference in match scores between at least one finger's most probable match and at least one adjacently probable match score; a difference in matched scores between at least one finger's most probable match and an averaged score of a set of non-matched candidates for the searched finger, an average match score of at least a plurality of fingers; a difference in average match scores between at least a plurality of fingers' most probable match and at least one adjacently probable average score; a difference in average matched scores between at least a plurality of finger's most probable match and an averaged score of a set of non-matched candidates for the searched fingers, the finger index being searched; the number of fingers used in the search; the number of times a finger index appears in a subset of matches; the number of records in the database; and whether an enhanced matching algorithm is to be used; and~~

~~organizing said database records as a function of said calculated record identification metric.~~

2. (Currently amended) The method ~~for characterizing the probability of a fingerprint match~~ of claim **1**, wherein the ~~further comprising the step of modifying the calculation of said~~ at least one record identification metric further indicates ~~based on the~~ strength of an identified ~~said~~ match.

3. (Canceled)

4. (Currently amended) The method ~~for characterizing the probability of a finger print match~~ of claim **1**, further comprising ~~the step of~~ providing at least a portion of the file records in the respondent lists and the corresponding ~~at least one of said~~ at least one record identification metric ~~and at least a subset of database records~~ for ~~further~~ enhanced matching algorithm processing.

5. (Currently amended) The method of claim 1, wherein the method is applied in multiple matching stages ~~multiple application of the method for characterizing the probability of a finger print match of claim 1~~ to generate for at least some of the file records in the respondent lists a first record identification metric from a first matching stage and a second record identification metric from a second matching stage, which are used to calculate a third record identification metric, which indicates whether there is a match between the search record and the corresponding file record~~, wherein at least a first record identification metric and a second record identification metric~~

are generated; and calculating at least a third record identification metric based on at least said first and second record identification metric.

6. (Currently amended) A method ~~for characterizing the probability of a finger print match for at least one finger, said method~~ comprising:

for at least some of the file records in the respondent lists:

    ~~providing~~ generating at least a first and a second record identification metric according to the method of claim 1;

    ~~providing~~ calculating at least a third record identification metric;

    promoting at least one of ~~said~~ the first or the ~~and said~~ second record identification metrics as a function of ~~said~~ the at least third record identification metric.

7. (Currently amended) A method ~~for characterizing the probability of a finger print match for at least one finger, said method~~ comprising:

for at least some of the file records in the respondent lists:

    ~~providing~~ generating at least a first and a second record identification metric according to the method of claim 1;

    ~~providing~~ calculating at least a third record identification metric;

    demoting at least one of ~~said~~ the first or the ~~and said~~ second record identification metrics as a function of ~~said~~ the at least third record identification metric.

8. (Currently amended) The method of Claim 15 further comprising, ~~A method for determining the credibility of fingerprint record identification match, said method comprising the steps of:~~

~~providing at least a first record identification metric in accordance with the method of claim 1;~~

~~providing at least a second record identification metric with the method of claim 5; and~~

for at least some of the file records in the respondent lists, calculating a match credibility metric as a function of at least one of: the number of prints from the search record for which a search was performed, the ~~the number of fingers used in the search, said~~ first record identification metric, or the ~~and said~~ second record identification metric.

9. (Currently amended) The method ~~for determining the credibility of fingerprint record identification match~~ of claim 15 ~~claim 7~~, further comprising ~~the step of~~ providing a user with a set of file records from the respondent lists based on the calculated first, second and third ~~at least one of said first~~ record identification metrics ~~metric and said second record identification metric~~.

10. (Currently amended) A method ~~for characterizing the probability of a finger print match for at least one finger, said method~~ comprising ~~the steps of~~:

    receiving a search record and a plurality of file records from a database with each file record being identified by a different file record identification (ID), wherein the search and file records each comprise a plurality of prints corresponding to fingers on a hand, and each print is identified by a finger number that indicates a position of the corresponding finger on the hand;

    for each of at least some of the plurality prints in the search record, performing a search by comparing the print to the print in the file records having the same finger number and generating a corresponding sorted respondent list for the finger number comprising a portion of the plurality of file records, with each file record on the list being associated with a match score;

    determining a set of parameters comprising: the number of prints from the search record for which a search was performed and the corresponding finger numbers for those prints for which the search was performed, a size of the database, an average match score for each file record ID in the respondent lists, any file record IDs that appear on multiple respondent lists, any match scores on the respondent lists determined to be a non-matching score that is less than a match score threshold;

    determining a first and a second set of features based on the set of parameters;

    for each of the file records in the respondent lists:

        calculating a first record identification metric based on individual finger decision logic, which uses the set of parameters and the first set of features, wherein the first set of features

comprises: the match score for the file record; a score difference between the match score for the file record and the match score of an adjacent file record; and a score difference between the match score for the file record and an average non-matching score calculated based on at least some of the non-matching scores;

      calculating a second record identification metric based on multiple finger decision logic, which uses the set of parameters and the second set of features, wherein the second set of features comprises: the average match score for the file record; a score difference between the average match score for the file record and the average match score of an adjacent file record; a score difference between the average match score of the file record and an average non-matching score calculated based on at least some of the non-matching scores; a frequency of appearance if the file record appears on multiple respondent lists; results of the individual finger decision logic;

~~providing at least a plurality of match scores for at least one finger;~~

~~providing a finger index;~~

~~providing a number of fingers used in the search;~~

~~providing a number of times a finger index appears in a subset of probable matches;~~

~~providing a number of records in the database;~~

~~calculating a record identification metric based on at least one of: said plurality of~~
~~match scores for at least one finger; a difference in match scores between at least one~~
~~finger's most probable match and at least one adjacently probable match score; a~~
~~difference in matched scores between at least one finger's most probable match and~~
~~an averaged score of a set of non matched candidates for the searched finger; an~~
~~average match score of at least a plurality of fingers; a difference in average match~~
~~scores between at least a plurality of fingers' most probable match and at least one~~
~~adjacently probable average score; a difference in average matched scores between at~~
~~least a plurality of finger's most probable match and an averaged score of a set of~~
~~non matched candidates for the searched fingers; the finger index being searched; the~~
~~number of fingers used in the search; the number of times a finger index appears in a~~
~~subset of probable matches; the number of records in the database; and whether an~~
~~enhanced matching algorithm is to be used;~~

~~organizing said database records as a function of said calculated record identification~~
~~metric~~

~~providing at least one of said record identification metric and at least a subset of~~
~~database records for further enhanced matching algorithm processing;~~

~~calculating a second record identification metric based on at least one of: said~~
~~plurality of match scores for at least one finger; a difference in match scores between~~
~~at least one finger's most probable match and at least one adjacently probable match~~

~~score; an average match score of at least a plurality of fingers; a difference in average match scores between at least a plurality of fingers' most probable match and at least one adjacently probable average score; the finger index being searched; the number of fingers used in the search; the number of times a finger index appears in a subset of probable matches; and the number of records in the database;~~

      calculating at least a third record identification metric based on at least said first and second record identification metric;

      at least one of promoting <u>or</u> [[and]] demoting at least one of <u>the</u> [[said]] first and <u>the</u> [[said]] second record identification metrics as a function of <u>the</u> [[said]] at least third record identification metric;

      calculating a match credibility metric as a function of at least one of: <u>the number of prints from the search record for which a search was performed,</u> <u>the</u> ~~the number of fingers used in the search, said~~ first record identification metric, <u>or the</u> ~~and said~~ second record identification metric; [[and]]

    <u>providing, for further enhanced matching algorithm processing, at least one of the first or the second record identification metric and the corresponding file record for at least a portion of the file records in the respondent lists;</u>

      providing a user with <u>a set of file records based on</u> at least one of <u>the corresponding</u>[[said]] first record identification metric<u>,</u> ~~and said~~ second record identification metric <u>or third record identification metric</u>.

11. (Currently amended) An automated digital processing system ~~for characterizing the probability of a finger print match for at least one finger, said system~~ comprising:

means for receiving a search record and a plurality of file records from a database with each file record being identified by a different file record identification (ID), wherein the search and file records each comprise a plurality of prints corresponding to fingers on a hand, and each print is identified by a finger number that indicates a position of the corresponding finger on the hand;

for each of at least some of the plurality prints in the search record, means for performing a search by comparing the print to the print in the file records having the same finger number and generating a corresponding sorted respondent list for the finger number comprising a portion of the plurality of file records, with each file record on the list being associated with a match score;

means for determining a set of parameters comprising: the number of prints from the search record for which a search was performed and the corresponding finger numbers for those prints for which the search was performed, a size of the database, an average match score for each file record ID in the respondent lists, any file record IDs that appear on multiple respondent lists, any match scores on the respondent lists determined to be a non-matching score that is less than a match score threshold;

means for determining a first and a second set of features based on the set of parameters;

means for, for each of the file records in the respondent lists:

calculating a first record identification metric based on individual finger decision logic, which uses the set of parameters and the first set of features, wherein the first set of features comprises: the match score for the file record; a score difference between the match score for the file record and the match score of an adjacent file record; and a score difference between the match score for the file record and an average non-matching score calculated based on at least some of the non-matching scores;

calculating a second record identification metric based on multiple finger decision logic, which uses the set of parameters and the second set of features, wherein the second set of features comprises: the average match score for the file record; a score difference between the average match score for the file record and the average match score of an adjacent file record; a score difference between the average match score of the file record and an average non-matching score calculated based on at least some of the non-matching scores; a frequency of appearance if the file record appears on multiple respondent lists; results of the individual finger decision logic;

~~means for providing at least a plurality of match scores for at least one finger;~~

~~means for providing a finger index;~~

~~means for providing a number of fingers used in the search;~~

means for providing a number of times a finger index appears in a subset of probable matches;

means for providing a number of records in the database;

means for calculating a record identification metric based on at least one of: said plurality of match scores for at least one finger; a difference in match scores between at least one finger's most probable match and at least one adjacently probable match score; an average match score of at least a plurality of fingers; a difference in matched scores between at least one finger's most probable match and an averaged score of a set of non-matched candidates for the searched finger; a difference in average match scores between at least a plurality of fingers' most probable match and at least one adjacently probable average score; a difference in average matched scores between at least a plurality of finger's most probable match and an averaged score of a set of non-matched candidates for the searched fingers; the finger index being searched; the number of fingers used in the search; the number of times a finger index appears in a subset of probable matches; the number of records in the database; and whether an enhanced matching algorithm is to be used;

means for organizing said database records as a function of said calculated record identification metric

means for providing at least one of said record identification metric and at least a subset of database records for further enhanced matching algorithm processing;

~~means for calculating a second record identification metric based on at least one of:~~ ~~said plurality of match scores for at least one finger; a difference in match scores~~ ~~between at least one finger's most probable match and at least one adjacently~~ ~~probable match score; an average match score of at least a plurality of fingers; a~~ ~~difference in matched scores between at least one finger's most probable match and~~ ~~an averaged score of a set of non-matched candidates for the searched finger; a~~ ~~difference in average match scores between at least a plurality of fingers' most~~ ~~probable match and at least one adjacently probable average score; a difference in~~ ~~average matched scores between at least a plurality of finger's most probable match~~ ~~and an averaged score of a set of non-matched candidates for the searched fingers; the~~ ~~finger index being searched; the number of fingers used in the search; the number of~~ ~~times a finger index appears in a subset of probable matches; and the number of~~ ~~records in the database;~~

      means for calculating at least a third record identification metric based on at least said first and second record identification metric;

      means for at least one of promoting <u>or</u> [[and]] demoting at least one of <u>the</u> [[said]] first and <u>the</u> [[said]] second record identification metrics as a function of <u>the</u> [[said]] at least third record identification metric;

      means for calculating a match credibility metric as a function of at least one of: <u>the number of prints from the search</u>

record for which a search was performed, the ~~the number of fingers used in the search, said~~ first record identification metric, or the ~~and said~~ second record identification metric; [[and]]

means for providing, for further enhanced matching algorithm processing, at least one of the first or the second record identification metric and the corresponding file record for at least a portion of the file records in the respondent lists;

means for providing a user with a set of file records based on at least one of the corresponding[[said]] first record identification metric, ~~and said~~ second record identification metric or third record identification metric.

12. (New) The method of Claim 1, wherein the at least one record identification metric is calculated based on at least one of an individual finger decision logic or a multiple finger decision logic.

13. (New) The method of Claim 12, wherein the individual finger decision logic uses first features included in the set of features, the first features comprising for each of at least a portion of the file records in the respondent lists:

the match score for the file record;

a score difference between the match score for the file record and the match score of an adjacent file record;

a score difference between the match score for the file record and an average non-matching score calculated based on at least some of the non-matching scores.

14. (New) The method of Claim 13, wherein the multiple finger decision logic uses second features included in the set of features, the second features comprising for each of at least a portion of the file records in the respondent lists:

the average match score for the file record;

a score difference between the average match score for the file record and the average match score of an adjacent file record;

a score difference between the average match score of the file record and an average non-matching score calculated based on at least some of the non-matching scores;

a frequency of appearance if the file record appears on multiple respondent lists;

results of the individual finger decision logic.

15. (New) The method of claim 1, wherein the method is applied to generate for at least some of the file records in the respondent lists a first record identification metric using an individual finger decision logic and a second record identification metric using a multiple finger decision logic, which are used to calculate a third record identification metric that indicates whether there is a match between the search record and the corresponding file record.